

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: May 3, 2002, 16:27:37 ; Search time 88.01 Seconds
(without alignments)
221.574 Million cell updates/sec

Title: us-09-534-229C-1
Perfect score: 1362
Sequence: 1 MARFAALAVCAAAALLAVAA.....MLGTATGGNLCYQRFAS 256

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 219241 seqs, 76174552 residues
Total number of hits satisfying chosen parameters: 219241

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

ALIGNMENTS

RESULT 1

S48847
chitinase (EC 3.2.1.14) cht2a precursor - barley
C;Species: Hordeum vulgare (barley)
C;Date: 10-Dec-1994 #sequence_revision 10-Nov-1995 #text_change 22-Jun-1999
C;Accession: S48847
R;Byrgelsson, T.; Collinge, D.B.; Green, B.; Gumnesson, P.O.; Kragh, K.; Thordal-C
submitted to the EMBL Data Library, March 1994
A;Description: Purification, characterization and cDNA sequence of a basic chitinase.
A;Reference number: S48847
A;Accession: S48847
A;Molecule type: mRNA
A;Residues: 1-256 <BRY>
A;Cross-references: EMBL:X78671; NID:g563486; PIDN:CAA55344.1; PID:g563487
C;Genetics:
A;Gene: cht2a
C;Superfamily: plant chitinase; plant chitinase homology
C;Keywords: glycosidase; hydrolase; polysaccharide degradation
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-256/Product: chitinase cht2a #status predicted <MAT>
F;31-255/Domain: plant chitinase homology <PCH>

Query Match 97.9%; Score 1334; DB 2; Length 256;
Best Local Similarity 98.4%; Pred. No. 2e-108;
Matches 252; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY	1	MARFAALAVCAAAALLAVAAAGGAAAGVGSVITRSVYASMLPNRDNLSLCPARGFYTYDAF	60
Db	1	MARPAALAVCAAAALLAVAVGGAAGVGSVITRSVYASMLPNRDNLSLCPARGFYTYDAF	60
QY	61	IAAANTFPGFTGSGADDIKRDLAAFFGQTSHTTGTGTCGAADQFQWGYCFKEISKATS	120
Db	61	IAAANTFPGFTGSGADDIKRELAAFFGQTSHTTGTGTCGAADQFQWGYCFKEISKATS	120
QY	121	PPYIGRGPQLTGRSNVDLAGRAIGKDLVSNPDVSTDAVVSFRTAMFWMTAQGNKPS	180
Db	121	PPYIGRGPQLTGRSNVDLAGRAIGKDLVSNPDVSTDAVVSFRTAMFWMTAQGNKPS	180
QY	181	HNVALRRWTPTAADTAAGRVPGYGVITNTIINGGLECGMGRNDANVDRIYTRYCGMLGT	240
Db	181	HNVALRRWTPTAADTAAGRVPGYGVITNTIINGGLECGMGRNDANVDRIYTRYCGMLGT	240
QY	241	ATGGLNLCYQRFAS	256
Db	241	ATGGLNLCYQRFAS	256

RESULT 2

S48848
chitinase (EC 3.2.1.14) cht2b precursor - barley
C;Species: Hordeum vulgare (barley)

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: May 3, 2002, 18:32:12 ; Search time 88.01 Seconds
(without alignments)
276.101 Million cell updates/sec

Title: US-09-534-229C-3
Perfect score: 1765
Sequence: 1 MRGVVVVWMLAAFAVSAHA.....DLLGVSYGDNLDYCNORPFA 319
Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Search: 219241 seqs, 76174552 residues
Total number of hits satisfying chosen parameters: 219241

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

30	1168.5	66.2	327	1	J00965	tinase (EC 3.2.
31	1167.5	66.1	329	2	T06999	tinase (EC 3.2.
32	1162	65.8	321	2	S57482	chitinase class 1
33	1156	65.5	308	2	JC2253	chitinase (EC 3.2.
34	1154.5	65.4	302	2	T10810	chitinase (EC 3.2.
35	1140	64.6	243	2	JN0884	chitinase (EC 3.2.
36	1125	63.7	266	2	A38664	chitinase (EC 3.2.
37	1120	63.5	243	2	JC5918	chitinase (EC 3.2.
38	1099.5	62.3	318	2	T03036	chitinase (EC 3.2.
39	1071	60.7	263	2	S72528	chitinase (EC 3.2.
40	1045	59.2	264	2	S26625	chitinase (EC 3.2.
41	1022.5	57.9	340	2	S48030	probable chitinase
42	1012	57.3	263	2	S69184	chitinase (EC 3.2.
43	1004	56.9	246	2	S37341	chitinase (EC 3.2.
44	993	56.3	336	1	S18750	chitinase (EC 3.2.
45	966	54.7	275	2	T03032	chitinase (EC 3.2.

ALIGNMENTS

RESULT 1

S38670
chitinase (EC 3.2.1.14) - wheat
C:Species: Triticum aestivum (Common wheat)
C:Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 22-Jun-1999
C:Accession: S38670
R:Liao, Y.C.; Kreuzaler, F.; Tiburzy, R.; Reissner, H.J.
submitted to the EMBL Data Library, November 1993
A:Reference number: S38670
A:Accession: S38670
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-320 <L1A>
A:Cross-references: EMBL:X76041; NID:q416028; PIDN:CAA53626.1; PID:q416029
C:Superfamily: lectin-related plant chitinase; hevein chitin-binding domain homolog:
C:Keywords: glycosidase; hydrolase; polysaccharide degradation
F:21-62/Domain: hevein chitin-binding domain homology <HCB>
F:82-320/Domain: plant chitinase homology <PCH>

Query Match 96.1%; Score 1696.5; DB 2; Length 320;
Best Local Similarity 95.3%; Pred. No. 6.8e-119;
Matches 305; Conservative 9; Mismatches 5; Indels 1; Gaps 1;

QY	1	MRGVVVWMLAAFAVSAHAECGSGAGGATCPNCLCCSKFGFCGTTSDYCGTGCOSQCN	60
DB	1	MRGVVVWMLAAFAVSAHAECGSGAGGATCPNCLCCSKFGFCGTTSDYCGTGCOSQCN	60
QY	61	GCS-GGTPVPVPTPSGGVSSIISQSLFDQMLLRNDAAACAKFGFNYGAFVAAANSFSG	119
DB	61	GCSGGTVPVPTPTGGGVSSIISQSLFDQMLLRNDAAACAKFGFNYGAFVAAANSFSG	120
QY	120	FATTGSTDVKKREVAFLAQTSHETGGTAPDGPYSGYCFNBERGATSDYCTPSSOW	179
DB	121	FATTGADYRKEVAFLAQTSHETGGTAPDGPYSGYCFNBERGAASDYCPNSOW	180
QY	180	PCAPGKYFGRGPIQISHNINYPAGQATGTDLLNNPDVLSADATVSKTALFWMTPOS	239
DB	181	PCAPGKYFGRGPIQISYNINYPAGRAIGTDLNNPDVATDATVSKTALFWMTPOS	240
QY	240	PKPSSHVDITGRWSPSGADQAAGRVPGYGVITNIINGLECGRGDGRVADRIGFYKRYC	299
DB	241	PKPSSHVDITGRWSPSGADQAAGRVPGYGVITNIINGLECGRGDGRVADRIGFYKRYC	300
QY	300	DLLGVSYGDNLDYCNORPFA	319
DB	301	DLLGVSYGDNLDYCNORPFA	320

RESULT 2

JC2071
chitinase (EC 3.2.1.14) a - rye

CC chitinase gene in which the mRNA is extracted from a fully hardened
CC autumn wheat P1173438 (of high snow mould resistance). The genes are
CC useful for creating a plant grade, highly resistant to psychophilic plant
CC pathogenic microbes.
XX
SQ Sequence 323 AA;

Query Match 100.0%; Score 1792; DB 22; Length 323;
Best Local Similarity 100.0%; Pred. No. 2.6e-144;
Matches 323; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 MSTLRACATAVLAVLAAAVTATAEOCGSQAGGAKADCLCCSGFGCGTTSYDCGP 60
DB 1 mstlracatavlavlaaavtataeqcgsgaggaakadclccsfgcgttsdyccp 60
QY 61 RCQSQCTCGCGGGGASIVSRDLFERFLHRNDAACLARGFYTYDAFLAAAGAFPAFGT 120
DB 61 rcqsqctcgcggggvasivsrdlferflhrndaacrlargfytydaflaaagafpafgt 120
121 TGDLDTRKREVAFFGOTSHETTGWPTAPDGFPSWGCYCFKQEGSPSYCDOSADWPCA 180
DB 121 tgdldtrkrevaaffgotshetggwptadgpfswgcycfkgqegspsycdgsadwpc 180
QY 181 PGQYGRGPIQLTHNYGPAIRAIGVDLLNPDVATDPTVAFKTAIWFWMTTQSNKP 240
DB 181 pgqygrgpiqlthnynypagraigvdllnnpdlvatdptvafktaiwfwmttqsnkp 240
QY 241 SCHDVITGLWPTARSAAGRVPGYGVITNVINGIECGMGQNDKVADRIGFYKRYCDIF 300
DB 241 schdvtglwptarsaagrpgygvitnvningiecgmgqndkvadrifgfykrycdif 300
QY 301 GIGYGNLDCYNOLSFNVGLAAQ 323
DB 301 gigygnldcynqlsfngvllaq 323

RESULT 2
ID AAB11489
XX AAB11489 standard; protein; 319 AA.
AC AAB11489;
XX
DT 02-MAR-2001 (first entry)
XX
DE Wheat chitinase protein homologous to spring wheat chitinase.
XX
KW Wheat; chitinase; low temperature expression; hardened; plant;
XX snow mould resistance; psychophilic plant pathogen; spring wheat.
OS Triticum aestivum.
XX
PN JP2000270866-A.
XX
PD 03-OCT-2000.
XX
PF 25-MAR-1999; 95JP-0081694.
XX
PR 25-MAR-1999; 95JP-0081694.
XX
PA (HOKK-) HOKKAIDO NOGHO SHIKENBACHO.
XX
XX WPI; 2001-027417/04.
XX
PT New low temperature expression chitinase gene for producing a plant
XX grade highly resistant to psychophilic plant pathogenic microbes -
XX
PS Claim 7; Fig 3; 1lpp; Japanese.
XX

CC This invention describes novel wheat chitinase genes. The invention also
CC describes a method for the isolation of a low temperature expression
CC chitinase gene in which the mRNA is extracted from a fully hardened
CC autumn wheat P1173438 (of high snow mould resistance). The genes are

CC useful for creating a plant grade, highly resistant to psychophilic plant
CC pathogenic microbes.
XX
SQ Sequence 319 AA;

Query Match 72.2%; Score 1294.5; DB 22; Length 319;
Best Local Similarity 71.0%; Pred. No. 4.5e-102;
Matches 223; Conservative 34; Mismatches 48; Indels 9; Gaps 1;
QY 12 VLAVLAAAVTATAEOCGSQAGGAKADCLCCSGFGCGTTSYDCGPRCQSQCTCGCG 71
DB 5 vlvamlaaafavsaahaeqcgsgaggaatcpnclccskfkgcttsdyctgctgcgncsg 64
QY 72 G-----GGGVASIVSRDLFERFLHRNDAACLARGFYTYDAFLAAAGAFPAFGT 122
DB 65 gtpvptpsggvgvssliqslfdqmlhrndaacrlargfytydaflaaagafpafgt 124
QY 123 DLDTRKREVAFFGOTSHETTGWPTAPDGFPSWGCYCFKQEGSPSYCDOSADWPCA 182
DB 123 stdvkkrevaaffgotshetggwptadgpfswgcycfkgqegspsycdgsadwpcap 184
QY 183 KOYGRGPIQLTHNYGPAIRAIGVDLLNPDVATDPTVAFKTAIWFWMTTQSNKPSC 242
DB 185 kkyfgrgpiqlthnynypagraigvdllnnpdlvasdatvsktalwfmtpqspkps 244
QY 243 HDVITGLWPTARSAAGRVPGYGVITNVINGIECGMGQNDKVADRIGFYKRYCDIF 302
DB 245 hdvitgrwspgadqagrpgygvitnvningiecgmgqndkvadrifgfykrycdilg 304
QY 303 GYGNLDCYNOLSF 316
DB 305 sygndldcynqrpf 318

RESULT 3
ID AAW98079
XX AAW98079 standard; Protein; 318 AA.
AC AAW98079;
XX
DT 21-JUN-1999 (first entry)
XX
DE Rye chitinase-like protein CHT9 preprotein.
XX
KW CHT9; chitinase-like protein; antifreeze protein; AFP;
XX winter rye; antifungal; fungicide; cold tolerance; frost tolerance;
XX transgenic plant; preservation; cryopreservation; tumour; therapy.
XX
OS Secale cereale.
XX
FH Key Location/Qualifiers
FT Peptide 1..20
FT /note= "signal peptide"
FT Protein 21..318
FT /note= "mature protein, also claimed in Claim 10"
XX
PN WO9906565-A2.
XX
PD 11-FEB-1999.
XX
PF 31-JUL-1998; 98WO-CA00745.
XX
PR 31-JUL-1997; 97US-0903872.
XX
PA (ICEB-) ICE BIOTECH INC.
XX
PI Griffith M, Hew C, Moffatt B, Xiong F;
XX
DR WPI; 1999-153795/13.
XX N-PSDB; AAX24889.
XX
PT New nucleic acid encoding antifreeze polypeptides from plants -

